

What is claimed is:

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1. An multi-frequency band antenna comprising:
 - 2 a first radiating element being shaped as an extended bent wire for functioning as an
 - 3 antenna element of a first frequency band, said first radiating element comprising a
 - 4 conductive material;
 - 5 a second radiating element for functioning as an antenna element of a second frequency
 - 6 band, said second frequency band being different from said first frequency band, said
 - 7 second radiating element comprising a conductive material; and
 - 8 a feed radiating element having a first end being used as a signal feed point for signals
 - 9 of said first and second frequency bands, and a second end being electrically
 - 10 connecting said first radiating element to said second radiating element and forming a
 - 11 top loaded structure.
 - 1 2. The multi-frequency band antenna as claimed in claim 1, said feed radiating element
 - 2 being a metal conductor.
 - 1 3. The multi-frequency band antenna as claimed in claim 1, said feed radiating element
 - 2 being formed by a metal conductor and a base of a dielectric material.
 - 1 4. The multi-frequency band antenna as claimed in claim 3, said metal conductor being
 - 2 placed on a top surface of said base.
 - 1 5. The multi-frequency band antenna as claimed in claim 3, said metal conductor being
 - 2 placed on an interior layer of said base.
 - 1 6. The multi-frequency band antenna as claimed in claim 1, said first and second

2 radiating elements being formed by two metal conductors and a base of a dielectric
3 material.

1 7. The multi-frequency band antenna as claimed in claim 6, said metal conductors being
2 placed on a top surface of said base.

1 8. The multi-frequency band antenna as claimed in claim 6, said metal conductors being
2 placed in an interior area of said base.

1 9. The multi-frequency band antenna as claimed in claim 6, said base having at least two
2 interior layers and said metal conductors being placed in different interior layers.

1 10. The multi-frequency band antenna as claimed in claim 1, said first and said second
2 radiating elements being coplanar and forming an angle with said feed radiating
3 element.

1 11. The multi-frequency band antenna as claimed in claim 10, said angle being in a range
2 between 70° to 180°.

1 12. The multi-frequency band antenna as claimed in claim 1, said first and said second
2 radiating elements being placed on a curved surface.

1 13. The multi-frequency band antenna as claimed in claim 1, said first radiating element
2 having an extended square-wave pattern.

1 14. The multi-frequency band antenna as claimed in claim 1, said first radiating element
2 having an extended saw-tooth pattern.

1 15. The multi-frequency band antenna as claimed in claim 1, said first radiating element
2 having an extended sinusoid pattern.

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16. The multi-frequency band antenna as claimed in claim 1, said first radiating element
2 having a pattern which is a combination of at least two patterns selected from the
3 group of extended square-wave pattern, extended saw-tooth pattern and extended
4 sinusoid pattern.

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17. The multi-frequency band antenna as claimed in claim 1, said second radiating
2 element being a straight conductor.

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18. The multi-frequency band antenna as claimed in claim 1, said second radiating
2 element being an extended bent conductor.